A State of California

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
COMMUNITY PROTECTION AND HAZARDOUS WASTE REDUCTION INITIATIVE ADVISORY COMMITTEE

MEETING SUMARY
April 20, 2016

Cal Center Board Room, First Floor
8800 Cal Center Drive
Sacramento, California 95826
http://www.calepa.ca.gov/broadcast/

Committee Members in Attendance:
David Asti
Cynthia Babich
Ingrid Brostrom
Dawn Koepke
Nick Lapis
Oladele Ogunseitan, Ph.D.
Virginia St. Jean
Chuck White

CPHWR Initiative Team:
Paula Batarseh, Branch Chief
Natalie Marcanio, Team Lead and Senior Scientist
Jerry Lile, Senior Scientist
Eric Slaff, Senior Scientist
Lazaro Cardenas Jr., Outreach Coordinator
Amelia Hicks, Program Analyst
Anna Hostler, Office Technician

Also Present:
Greg Bourne, Facilitator, UC Davis Extension Collaboration Center
Rick Brausch, Chief, Policy & Program Support Division, DTSC
John Follin, General Atomics
Elise Rothschild, Deputy Director, DTSC
Jane Williams, Executive Director, California Communities Against Toxics
Louie Wong, General Atomics

1. Introductions, Agenda, & Objectives

Mr. Bourne opened the meeting. The committee members, team staff, and other DTSC staff introduced themselves. Mr. Bourne announced that Xonia Villanueva would be joining via podcast.

Mr. Bourne explained that today's agenda would be primarily to hear about the potential pilot projects submitted by committee members.

Ms. Brostrom expressed surprise at today's focus; at the last meeting she had understood that it would be lead acid batteries. Ms. Batarseh explained that the committee members had felt the need for more time to discuss the selection of pilot projects with their constituents. Staff had felt it wise to use today's time to go through the ideas, as selection needs to be done sooner rather than later.

Ms. Brostrom stated that she did not feel prepared or comfortable with the fast pace. She sought a deeper understanding of the categories and a more systematic way of picking the pilot projects.

Ms. Rothschild stated that they knew that lead acid batteries would be one of the projects, and they wanted the committee to look at the other proposed projects. For the next meeting, the team could set up more detailed presentations and the committee could make the selections by mid-May. She understood that the timeline is very rushed.

Mr. Bourne stressed that DTSC wanted the proposals to come from the committee.

Ms. St. Jean stated that she was struggling with how to overlay the table with EJ neighborhoods. Mr. Slaff responded that the team had given the committee all the different locations where data might be available, enabling the committee to draw its own conclusions. The team could pull conclusions, but did not know if those would be what the committee wanted to obtain.

Ms. Babich suggested that the committee surround itself with people who can give good, concise information – people they can trust. She also mentioned that she would like the group to think about balancing cost effectiveness with health impacts.

Mr. Bourne said that for today, the submitters would present their proposals and the committee would ask questions to clarify, but not comment on each proposal's merit. At the next meeting, more criteria would be presented to consider.

2. Review/discuss prior meeting summary and action items

Ms. St. Jean requested changes to the prior meeting summary: her statement halfway down page 8 and her statement near the top of page 10.

3. Overview of submitted potential pilot project proposals

- Dr. Ogunseitan: **Asbestos – friable**
    - There are still many products in circulation that contain asbestos, due in part to the failure of federal legislation to eliminate asbestos from all consumer products – although the government recognizes its dangers.
    - California is one of the largest depositories of asbestos. It is also exported out of state.
    - Although there is protective gear, as well as processes and practices to prevent exposures, diagnoses of mesothelioma are ongoing.
    - Asbestos is the most litigated hazardous substance in the U.S., if not the world.

- The Azusa Landfill, with a life expectancy of 32 years according to WMSolutions, provides a solution that is temporary only.
- This proposal is twofold and involves feasibility studies: Place all asbestos-containing products in the state of California under the California Safer Consumer Products (SCP) Law; and work with WMSolutions to use high-temperature conversion of friable asbestos to a less toxic material instead of burying it.

Mr. White asked about the problem with land disposal/burying asbestos. He also asked about imposing expensive new technology on the remediation and removal of asbestos in existing buildings, which is the real point of exposure.

Mr. Lapis commented that we need to know much more about the specific thermochemical conversion technologies to which Dr. Ogunseitan is referring.

Mr. Asti commented that melting silicate minerals is extremely energy-intensive.

Ms. Brostrom asked the location of the other California disposal sites (with an overlay of the demographics). She also asked if California exports its asbestos waste.

- Ms. St. Jean: **Asbestos waste – new and legacy**
  - Reduce the generation of asbestos waste.
  - Permanently seal legacy landfills.
  - Treat the legacy waste by making it into glass or a cementacious product.
  - Cease the manufacture of asbestos.
  - Consider better segregation of materials as asbestos is being removed from buildings; incentivize contractors.

Ms. Babich commented that recycling did not seem a good idea.

Mr. White commented that all the asbestos generated in California comes from remediation and removal from buildings andother equipment. California regulates asbestos more stringently than anywhere else. Mr. White was not sure what more can be done that isn't already required.

Ms. Brostrom stated that she was interested in delving more into cost incentives and fee structures of the waste streams.

- Mr. Lapis: **One pound propane cylinders**

Heidi Sanborn of the California Product Stewardship Council (CPSC) outlined the proposal.

- Flame King cylinders are disposable. Their disposal costs $5 to manage – although they are sometimes cheaper than that to buy.
- The public is frustrated because they don't know where to bring the cylinders for disposal.
- The five-pound cylinders are refillable. The CPSC is trying to shift the infrastructure for the one-pound cylinders to be refillable as well.
- The CPSC hopes to ban the sale of disposables.
- Mr. Lapis stated that there could be a pilot partnership with some of the big-box retailers that distribute propane.
- The disposable cylinders are causing huge issues for recycling facilities; they can blow up and shut down facilities.

Mr. White asked if it would make sense to expand the proposal to other types of flammable and explosive items such as marine flares and seatbelt retractors.

Ms. Brostrom asked if the cylinders are being disposed of in landfills or other hazardous waste facilities. Ms. Sanborn replied that they are banned; they must be punctured and the gas evacuated, then crushed and re-melted.

Ms. Brostrom asked about the volume of waste in California; where do the cylinders end up? Ms. Sanborn replied that they are used and come from farm fields, campgrounds, used by plumbers, Boy Scouts, etc. However, they largely end up in landfills.

Ms. St. Jean noted that marine flares do not have a refillable option.

- Ms. St. Jean: **Portable gas cylinders/canisters – canister recyclers**
    - The cylinders are a huge waste problem for the parks.
    - They get slipped into every part of the waste stream.
    - There is a huge safety factor for workers in landfills.
    - The metal is high grade.
    - In time, disposables should not be available.

Ms. Sanborn suggested joining this proposal idea with the previous one; Ms. St. Jean agreed. Ms. Sanborn added that videos on Google show how to use adapters to refill disposable cylinders; another idea is to legislate a ban on these adapters.

- Mr. White: **Use of flame retardants and management of flame retardant containing wastes**
    - There is international concern about health impacts of flame retardants because they are not adequately tested before going on the market.
    - If it chooses, DTSC has the authority to regulate it as a hazardous waste.
    - Through the Green Chemistry program, action could be taken to ensure that new flame retardants are not allowed to go on the market unless they are thoroughly tested.
    - Legacy flame retardants are everywhere and should be managed more closely. Most show up in the solid waste stream.

Ms. St. Jean commented that the results of consumer protection laws are that too many chemicals are getting into our bodies. She also expressed concern about the rush to judgement that the alternatives are any better, when they may not be adequately vetted.

Ms. Brostrom asked for clarity on whether the proposal is to have the flame retardants in the SCP queue. Secondly, she would like to see an EJ analysis of where the product is going.

Mr. Lapis asked what the actual pilot would be. Mr. White answered that it would involve legacy materials: what is the best way to segregate them from the waste stream and have them managed separately?

Mr. Lapis commented that we would need to know the specifics of the technologies being proposed.

Dr. Ogunseitan had understood that the fire authorities have always been against any attempt to regulate flame retardants beyond varying the concentrations.

Ms. Babich asked if part of the pilot was legislation to ban flame retardants. Mr. White replied that it could be, or it could be the Green Chemistry authority of the DTSC to enact the ban.

Ms. St. Jean commented that the consumer safety laws requiring these flame retardants are very outdated and are due to be looked at. She also commented that flame retardants could go into the halogenated legacy waste discussion.

- Mr. White: **Lead acid battery manufacture, use, collection and recycling**
    - Where is the existing battery technology problematic? Where are the leaks in the system, and are they widespread?
    - The pilot would evaluate the existing infrastructure for managing batteries – where they are generated, stockpiled, stored, transported, and handled. Are there problems in that system that cause exposures to lead?

Ms. Brostrom cautioned against the sentiment she often hears at DTSC about the scarcity of facilities. We need to lead with community protection. Mr. White agreed.

Ms. St. Jean felt that we need to scrutinize the one existing recycler – Quemetco – to make sure it is using best management practices (BMPs).

Ms. Babich stated that a huge population of EJ communities has already been contaminated. DTSC and others are looking at the situation with Exide; there is a huge amount of information and expertise we need to hear from. This committee's limited resources shouldn't all go into one pot.

Dr. Ogunseitan agreed that we need to figure out a better way to recycle the lead acid batteries – 90% of the lead produced in this country is for batteries. We need to figure out what we can do now with the waste stream. We also need to figure out how to replace these batteries.

Mr. White mentioned that the recycling rate for lead-acid batteries is well over 95%.

Mr. Lapis felt that this conversation is where we should be focused in terms of pilot scale.

- Ms. Villanueva: **Automobile/metal shredder waste**

Mr. Brausch explained the subject.

- Auto shredder waste has been a significantly-generated waste in California for many years.
- In 2014, SB 1249 directed DTSC to look more closely at auto shredding facilities to re-evaluate past decisions on whether it should be regulated as non-hazardous, and also to look at the facilities to determine the contamination emanating from the metal processing and sorting processing, as well as any possible off-site air or water impacts. DTSC is in the midst of this evaluation.
- A strong argument could be made for improvement of the way automobiles and appliances are deconstructed. After the violent particle size reduction, separation of the materials is difficult.

Ms. Brostrom outlined the proposal.

- There is a lead hazard: it does exceed the hazardous waste limits of 1,000 parts per million.

- Illegal shredding is going on. Auto shredders in general tend to be located in disadvantaged communities.
- SB 1249 has become very politicized; numerous attempts to get the ball rolling have been stymied. This pilot project would get around some of the difficult aspects of the legislative effort.

Ms. Babich commented that this is a particularly nasty industry and something needs to be done. It should be placed in the "Do something now" column.

Mr. White commented that as opposed to water contamination, air emissions from auto shredding has not been focused upon.

Ms. St. Jean asked about deconstruction versus destruction. Is it feasible to get the consumer side to deal with a requirement for manufacturers to do deconstruction – is there something we can do to force that in California, possibly leveraging consumer responsibility with international manufacturers?

Mr. Lapis felt that we would need to clarify whether we can add something such as nitrate that is not hazardous, before we spend a lot of money. Mr. Brausch responded that if you open the arena beyond hazardous waste, the list of pilots might become huge. However, committee members should feel free to recommend candidates that have good elements based on their assessment.

Mr. White agreed with Mr. Lapis that it is a very complicated topic. Metal shredders lay out the possibility of moving their operations to other states with less stringent standards.

Ms. Koepke commented on the costs associated with California's regulatory requirements – there is a significant advantage for auto dismantlers to do this activity underground without proper licensing, and without managing the hazardous components. It is indeed a challenging and complicated issue.

Ms. St. Jean pointed out the importance of learning about the economics of destruction versus deconstruction.

- Dr. Ogunseitan: **Electronics manufacturing solvent: n-methylpyrrolidone**
    - Electronic waste is considered universal waste.
    - California continues to dominate the electronics industry, and solar panel manufacturing is growing. All companies use this particular solvent that Dr. Ogunseitan has identified as a target.
    - The plant producing the highest amount of methyl is located in Fremont, a city with demographics that raise an EJ concern.
    - Exposures to the chemical occur not just within the manufacturing facilities but also in the adjoining communities.
    - There are two opportunities to make impact: work with Western Digital in Fremont to reduce environmental emissions of this chemical; and stimulate the search on alternatives through the SCP Law.

Mr. Lapis ascertained with Dr. Ogunseitan that there are alternatives, but their safety has not been studied. Mr. Lapis felt it would be beneficial for Western Digital to come and speak to the committee.

Ms. St. Jean requested for the California Air Resources Board (CARB) to be invited to the table as well as Green Chemistry.

Ms. Koepke confirmed with Dr. Ogunseitan that n-methylpyrrolidone is a Prop 65 chemical, and that the proposal would involve elevating the chemical from the candidate list through a petition process and/or including it as part of DTSC's work plan for consideration of the next round of priority products.

Mr. Asti asked if the electronics manufacturing plants are located in EJ communities. Dr. Ogunseitan replied that in Fremont, the area is predominantly lower socioeconomic status Asian community.

- Ms. St. Jean: **Solvent wastes – hydrocarbon (213), halogenated (211), oxygenated (212)**
    - We may not be doing enough for solvent recovery in both the state and the nation; they are completely recyclable and distillable.
    - We could be looking at BMPs for existing solvent recovery sites or for new ones that are not situated in EJ neighborhoods.

Mr. Brausch confirmed with Ms. St. Jean that the data she was looking at was manifested waste, so it was possible that it was going to solvent Treatment, Storage, and Disposals (TSDs) for recycling.

Ms. Babich asked about the term "milk run" recycling. Ms. St. Jean explained that one oil recycling company truck picks up waste at multiple stops; it is comingled, and the driver does a consolidated manifest for all the stops. In contrast, much of what goes into DTSC tracking is from a sole generator.

- Ms. St. Jean: **Petroleum contaminated wastes – legacy and ongoing generation of waste**
    - Our many refineries continue to generate, and we also have legacy waste.
    - A difficulty is that we have a very dilute amount of toxic material and a huge amount of dirt that needs to be treated.
    - No one wants to burn it; possibly we should recover some of it.
    - The waste shouldn't just be disposed of. There should be a requirement for refineries to do source reduction.
    - We have not put enough pressure on the petroleum companies to do waste minimization.

Ms. Brostrom expressed interest in pursuing the topic in terms of refinery production and getting more information on Pollution Prevention (P2) work already done.

Ms. St. Jean emphasized that the data appeared to be dated. Could DTSC give some SB 14 numbers? Ms. Marcanio replied that the latest reporting cycle was for the reporting year 2010. DTSC still has the tools to be able to call in reports for the facilities that are over the threshold.

Ms. Brostrom pointed out that both refineries are located in EJ communities; the benefit of the proposal would be dual.

- Ms. St. Jean: **Flares, pyrotechnics (devices and fireworks), unexploded ordnances, other explosives**

- By law, the Coast Guard requires boaters to have at least three unexpired aerial flares on board.
- The Coastal Commission has no answer for where boaters can dispose of their flares, which are in essence little bombs. People throw them in the water and put them in the recycling.
- There is a way to bring a portable incinerator to the site and destroy the flares while catching all of their emissions.
- The proposal would incentivize local treatment of the flares.

Mr. White mentioned explosive seatbelt retractors. Ms. St. Jean responded that those are compressed gas rather than flammable gas.

Mr. White asked if this proposal could be combined with the propane tanks as an explosive fire-type issue. Ms. St. Jean answered that propane is 100% recoverable, while the flares are taken to one of three places in the country. They are highly concentrated toxins with a lot of housing – very unstable. Once they are reacted the toxicity goes way down.

Ms. St. Jean informed Mr. Asti that the toxins are perchlorates.

Ms. Babich commented that there are various technologies that are not being used. Perhaps we can figure out a way to mandate and promote that these technologies actually be used.

Ms. Brostrom asked about the location of the three facilities. Ms. St. Jean answered that they are in Missouri, Louisiana, and Florida.

Mr. Lapis asked Ms. Williams what should be done with marine flares. She answered that they shouldn't be transported; they should be detonated in the proper environment or have supercritical water oxidation (SCWO) applied.

Ms. St. Jean mentioned a new battery-powered light to be used in place of the marine flares.

Mr. Bourne read a comment submitted by Xonia Villanueva, who was following the meeting on podcast. Her concern about the automobile/metal shredder waste stream was that it is not classified properly. It is exposing the public to very toxic levels of lead and other contaminants such as arsenic, cadmium and zinc.

- Ms. Babich: **DDT contaminated soil and groundwater**
    - This is a huge opportunity to get better technologies deployed to clean up contamination in our communities.
    - The proposal is to use SCWO technology at the Contaminant Control, Inc. (CCI) property, where DTSC has had a hand in the voluntary cleanup that did not go as well as planned.
    - The facility can easily be monitored.
    - A key part of the proposal would be to put something together for other communities to understand and use SCWO.

Ms. Brostrom asked how many other DDT-contaminated sites in California could benefit. Mr. Slaff replied that 100-200 sites are listed as either "Active" or "Needing to be Addressed" that have DDT listed as a "Contaminant of Concern" or "Potential Contaminant of Concern."

Ms. St. Jean asked if contaminants could be combined in a proposal. Ms. Babich replied that this proposal would work best to take the groundwater and include it with the contamination in the soil; the groundwater has half and half chlorobenzene and DDT.

Mr. White suggested picking a site with primarily DDT and a site with primarily PCB, hearing what the General Atomics people say, and demonstrating the SCWO. Benefits versus liabilities could be discussed regarding excavation/redisposal, excavation/incineration, and on-site destruction.

- Mr. Asti: **Petroleum contaminated soils & groundwater**
    - This category is one of the largest on the Summary of Wastes.
    - Mr. Asti is interested in any type of enhanced chemical oxidation – it is the one technology that he knows works.
- Mr. Asti: **Nitrate contaminated soil & groundwater**
    - It is a strategic attempt to team DTSC with the State Water Board.
    - Many EJ communities are rural. Their small water systems have a very small captive rate base, and they are not going to be able to address some of these issues.

Ms. Brostrom described the issue of the tension between community buy-in and the feeling of being imposed upon and having no choice. There is distrust: DTSC or the responsible parties want to use the cheapest option. The communities do not know if the treatment is effective and they have no control.

Mr. Slaff explained that "leave in place" treatment involves leaving untreated soil and putting some sort of institutional restriction on access. "In situ" treatment involves actually treating the soil in place.

Ms. St. Jean suggested expanding this proposal to the nitrogen compounds going into the ocean as well – would the treatment be applicable for ocean discharges? Mr. Asti replied that it would require a greater depth of study; seawater chemically is much more complex than groundwater.

Ms. Brostrom mentioned that she would like to hear from the Community Water Center on their nitrate studies in the Central Valley.

Mr. White noted that although nitrate is not considered a hazardous waste, it is clearly a waste material that has gotten into the water and it does pose a hazard. DTSC could use its authority to regulate it if it so chose.

- Ms. Brostrom: **Contaminated soil**
    - The proposal focuses on a community process to address issues that the committee discussed at the last meeting.
    - The first step of the process would bring together communities near hazardous waste disposal facilities and communities where remediation sites are often pitted against each other. They would generate shared problem-solving and shared principles.
    - The second step of the process would be to work with DTSC to implement a process whereby remediation communities would have more self-determination regarding disposal options they would like to pursue.
    - The proposal would address the distrust issues that communities have that DTSC has not been responsive to their needs.

Mr. White and Ms. Brostrom discussed the concept of not imposing or shifting burdens to other communities.

Mr. Slaff asked Ms. Babich how it was that her community did not want the waste shipped out, and it is still there, stockpiled. She referenced moral authority. She had traveled to Port Arthur, Texas, the destination of the Montrose site soil remediation. She had been alarmed at seeing the citizens there. When waste leaves a site, it goes into the state's realm and the company's realm.

Ms. St. Jean asked about obtaining consensus when there is public involvement. If people know specifically what their communities generate, would meetings have better outcomes? Ms. Brostrom spoke of compassion in these communities: when they learn about the impacts facing other communities, there is a willingness to try to avoid that and to protect the other communities. She also felt that it would be very useful for communities to know about their waste generation, at least in terms of longer-term planning.

Ms. Koepke asked how this would be different from the work of the People's Senate. She also asked about the targeted outcome of the proposal. Ms. Brostrom responded that the People's Senate was created to try to reform DTSC. The proposal would focus on the contaminated soil issue; it would also differ from the People's Senate in its collaboration with DTSC – its outcomes would already have agency buy-in. The outcome of the proposal would be that the communities create shared principles and BMPs.

Ms. Brostrom pointed out that Ms. Hostler's role is not to address the longer-term planning – she has been interacting with communities to ensure more responsiveness and dialogue. She added that there are very few venues where impacted communities drive the discussion and dialogue, as this proposal would facilitate.

Ms. Babich noted that this proposal was seeking an environmental/economic balance – industry has been leading the charge because they hold the purse strings, unless there are regulations. Ms. Brostrom agreed: rarely does she see community input changing the plans.

(7.) Presentation on treatment technology and impacted communities – Jane Williams

Jane Williams, Executive Director of California Communities Against Toxics, began with an introduction.

- The China Lake Naval Weapons Center has a permit to open-burn over 5 million pounds of hazardous waste, in violation of federal law.
- Another huge problem is the exemptions to the Resource Conservation & Recovery Act (RCRA), including Conditionally Exempt Small Quantity Generators (CESQG): small amounts of waste generated by businesses and people.
- What is actually in and out of the RCRA pile is very different from what this committee sees.

Ms. Williams began the presentation.

- She described the Assembled Chemical Weapons Assessment (ACWA) program, which required three different alternative technologies to incineration. It turned out that the problem was destroying energetics.
- SCWO was one of the three technologies created through this process. It destroys all kinds of chemicals. It was designed to meet a specific set of criteria.

- California produces all kinds of hazardous waste that is trucked outside the state and burned. Many of these wastes are eligible to be destroyed by non-incineration treatment technologies.
- We want to destroy the worst chemicals (PCBs, dioxins, dieldrin, PCP) rather than bury them, burn them, or move them around. The Stockholm Treaty stipulates this.
- Ms. Williams listed the technology attributes that SCWO had to meet.
- The producer of SCWO, General Atomics, is a California company.
- SCWO was picked by ACWA 25 years ago because it did not create new chemicals during its process.

Dr. Ogunseitan asked why gas phase chemical reduction went out of use when it seemed so successful with PCBs. Ms. Williams replied that Mr. Hallett holds the patent; she did not know what had happened. Possibly there was not enough demand for it and not enough outreach into why it would destroy other chemicals.

Ms. Marcanio asked about the waste at China Lake. Ms. Williams replied that it consists of munitions coming from unknown places. China Lake burns five million tons per year.

(6.) Technical presentations on contaminated soil treatment technology – General Atomics

John Follin and Louie Wong of General Atomics gave the presentation. (Initially Mr. Follin noted that many companies including General Atomics are working on advanced batteries.)

- Originally General Atomics' line of business was weapons (munitions and chemical agents) destruction; they had not thought of getting into hazardous waste destruction.
- In researching thermal treatment of waste (energetics), they tried rotary kiln incinerators, different chemical processing systems, and plasma arc systems. They selected SCWO.
- In 2012, General Atomics was approached by a French company that wanted technology for on-site waste destruction. This began the General Atomics commercial marketing effort.
- Mr. Wong defined supercritical water. It has low density and high solubilities of organic materials.
- In the gas phase, the main reaction products are CO_2, water, nitrogen gas, and steam.
- Mr. Wong explained the iSCWO process flow.

Mr. Wong answered questions from Dr. Ogunseitan and Mr. Lapis on combining water, fuel (diesel or waste oil), and waste at a specific ratio to get 650°C.

He answered Mr. Lapis that the processed water has a sterile liquid stream and can go to a treatment plant or be discharged down the sewer.

He answered Ms. Koepke that SCWO can treat multiple contaminants at one time (for example, petroleum waste can blend with pesticides).

He answered Ms. St. Jean that metals would be captured in the water droplets in the liquid phase, then they would have a filtration treatment.

He answered Mr. Lapis that to handle contaminated soils, it would use a traditional soil washing pre-treatment.

He answered Mr. Slaff that the soil washing may be solvent-based, but it depends on the contaminant. Dr. Ogunseitan observed that removing DDT is very difficult.

Ms. St. Jean observed that an inexpensive or viable way to wash lots of soils would have to be found.

Mr. Wong answered Ms. Villanueva (through Ms. Brostrom) that SCWO has been used at military sites for military types of waste, as well as in Europe to treat acid organic solvents, which have a high metal content.

Mr. Lapis asked about using higher temperatures. Mr. Wong answered that ammonia treatment requires closer to 700°C; it depends on the chemical you are trying to treat.

Ms. Villanueva asked (through Ms. Brostrom) about any health implications for sensitive receptors around the site being treated. Mr. Wong answered that they monitor all the gas emissions. The systems do not have large discharges, so it is easy to monitor.

Ms. St. Jean asked about supercritical water being used to wash the soils. Mr. Wong answered that the SCWO system can treat particle sizes 1/8″ or smaller. They generally strain the waste going into the system.

Mr. Lapis asked about any "off-the-shelf" washing technologies that General Atomics partners with, and about whether this technology makes more sense for petroleum waste and marine flares, for example. Mr. Wong answered that SCWO is more suited for liquid-type wastes. There are soil-washing companies with which to partner. Ms. Williams mentioned the Remediation Technologies Screening Matrix, which lists costs of various types of soil washing.

Mr. Lile asked about examples of the mobile treatment unit. Mr. Wong answered that there are two units in France and one in Corpus Christi.

Mr. Lile asked if SCWO is more cost-efficient for concentrated waste streams. Mr. Wong answered that it is better for low-concentration, dilute waste streams.

Ms. Villanueva asked (through Ms. Brostrom) if SCWO is for both soils and groundwater. Mr. Wong answered that it is secondary treatment for soils, and it processes groundwater without any kind of pre-treatment.

Ms. Brostrom asked how many projects the company can realistically take on. Mr. Wong answered that with 4,000 employees and its own manufacturing facilities, multiple projects should not be an issue. There is a demonstration facility in San Diego for processing simulated waste streams.

Ms. Brostrom asked about any community opposition to the technology, as it could be considered experimental. Mr. Wong answered that it was the preferred method for Bluegrass and a few other storage sites, but the sites had already started building the incinerators.

Dr. Ogunseitan asked about the chemicals upon which SCWO has been tested. Mr. Wong referred to the list he had supplied. All of the chemicals were in liquid form. The gloves and suits were also shredded and oxidized. Activated carbon had been oxidized as well.

Mr. White expressed concern about how communities would feel about a soil washing process that would leave 7% of the original DDT left in the soil. Ms. Babich felt that number would be acceptable; it was a *better* solution.

Ms. Villanueva asked (through Ms. Brostrom) about the possibility of seeing a demonstration at the San Diego facility. Mr. Wong said it could be done with the proper security clearances.

Ms. St. Jean asked about treating halogens such as brominated and fluorinated. Mr. Wong answered that SCWO would form sodium bromide and sodium fluoride.

Ms. Koepke asked for a ballpark cost of setting up one of the systems. Mr. Wong described the 10-gallon and 3-gallon designs. The operational cost depending on the waste stream is from $120-$150 per ton including labor.

Mr. Wong explained that General Atomics would not run and operate the equipment; it would be bought by the State of California or another company that does waste remediation. A 10-gallon system costs between $3-4 million. Regarding the lifespan of a system, the reactor itself has a titanium liner that is replaceable. General Atomics has run its system for well over 6,000 hours without replacing the liner. Valves and other components may need to be replaced but not the reactor. The system is designed to run 24/7.

(10.) Public Comments

There were no public comments.

(8.) Next meeting – agenda, goals, and expectations

Ms. St. Jean noted a gaping hole in the project proposal submissions: soil washing. Mr. Bourne pointed out that it was not too late for additional submissions.

Ms. Brostrom expressed concern that impacted communities did not have a voice in in the battery recycling projects. She had gone to community leaders living near Quemetco for feedback. Ms. Brostrom distributed the documents – fact sheets from all People's Senate members – that she had received from them. She described the concerns of the community around Quemetco.

Ms. Williams added her perspective on why she had concluded that we must get rid of lead acid batteries. A brand new facility in South Carolina, supposed to be the most highly-controlled secondary lead smelter in the world, is a catastrophe; the human factor thwarted all efforts at the controls. Ms. Williams felt that these lead smelters cannot be operated safely.

Mr. Bourne emphasized that the next meeting would focus on batteries.

Ms. Williams answered Mr. Lapis that there is no new green lead smelting technology.

Ms. Williams answered Mr. White that by federal law, there is no Startup-Shutdown Malfunction exemption anymore.

Ms. Williams stated that only 1/3 of the lead comes out of the stack of a secondary lead smelter. The other 2/3 comes out as fugitive non-stack emissions. She continued that OSHA's permissible exposure limits (PELs) are going to come way down because of the increase in the toxicity of lead. In the near future it will become very difficult to use lead occupationally.

Ms. St. Jean asked what should be done in the interim with the batteries we have now until we have alternative batteries. She stated that if Quemetco is really presenting this harm to the community, this committee should address it, even if it means closing the facility down as Exide was closed down. The community cannot be sacrificed because Quemetco is the one remaining facility in California.

Mr. Cardenas stated that the next meeting will be on May 5 at Headquarters in the Coastal Hearing Room. Mr. Bourne stated that a second meeting will be held in May also, so that the committee can provide recommendations to the Director to get the initiatives moving.

Mr. Bourne continued that at the next meeting, DTSC will give presentations on two proposals that deal with the batteries based on what they have heard from the committee. Questions have been raised by committee members; DTSC will try to provide people to address them. In the afternoon, the committee will do data analysis consisting of overlays of waste streams with EJ communities and maybe also locations of some of the projects.

Ms. Brostrom still felt that the aggressive schedule is going to affect the quality of the outcomes. The committee should have done the broader analysis first. Mr. Bourne concurred that the process may not be ideal, but given the timeframe available, we have tried to build in this extra month (May) to give more time to analyze and open the process up.

Dr. Ogunseitan sought clarification: should the committee wait until they hear the presentations next time, or should they propose specific lead acid battery pilot projects? Mr. Bourne responded that staff would like to hear any ideas from the committee ASAP.

(5.) Feedback on proposals

Mr. Bourne suggested going through the proposals to see which can be combined.

- The two asbestos proposals can be integrated as #1.
- The propane and portable gas cylinders can be connected as #2.
- Flame retardants is #3.
- (Lead acid battery manufacture will not be counted in this list.)
- Automobile shredder is #4.
- Electronics N-MP is #5.
- Solvents is #6.
- The two petroleum contaminated soils can be combined as #7.
- Flares and pyrotechnics is #8.
- The two DDT contaminated soils are #9.
- Nitrate is #10
- Contaminated soil decision-making is #11.

Ms. Brostrom pointed out that flares, and gas cylinders proposals were not quite in line with the EJ benefit, yet they are very important. Possibly this committee could recommend taking action on them to DTSC.

Mr. Bourne mentioned scope and scale – some of the pilots could be very resource-intensive while others could be much less.

Mr. Bourne asked the staff if they would be able to look at all 11 projects before May 5. Mr. Brausch responded that they could identify any areas where DTSC has current activities underway. He also noted that some proposals may have a hidden EJ element to uncover.

Ms. Koepke suggested taking the flame retardants proposal off the table, as DTSC is already contemplating this area as part of the three-year work plan for the SCP process.

Dr. Ogunseitan commented that the SCWO presentation, including the soil washing, had raised many questions in his mind about the feasibility of that pilot project.